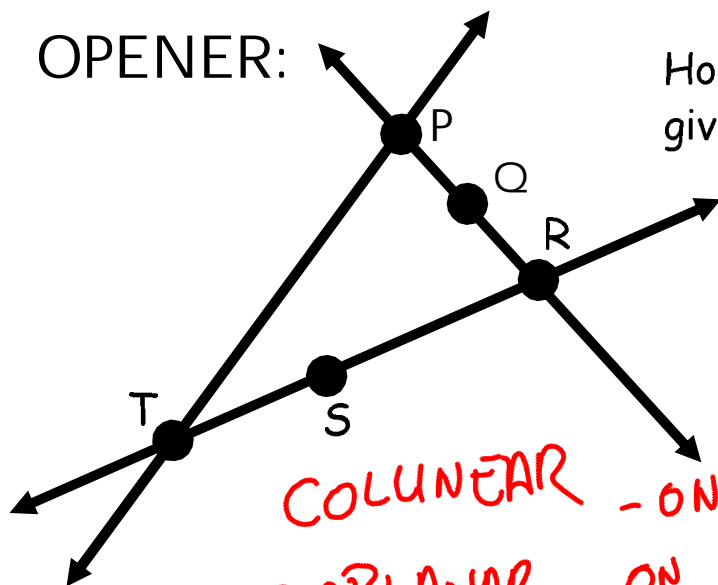


OPENER:



How many lines go through the given points.

- |      |   |                           |
|------|---|---------------------------|
| 1) Q | 1 | $\overleftrightarrow{PR}$ |
| 2) R | 2 |                           |
| 3) S | 1 |                           |
| 4) T | 2 |                           |

COLLINEAR - ON SAME LINE  
COPLANAR - ON SAME PLANE

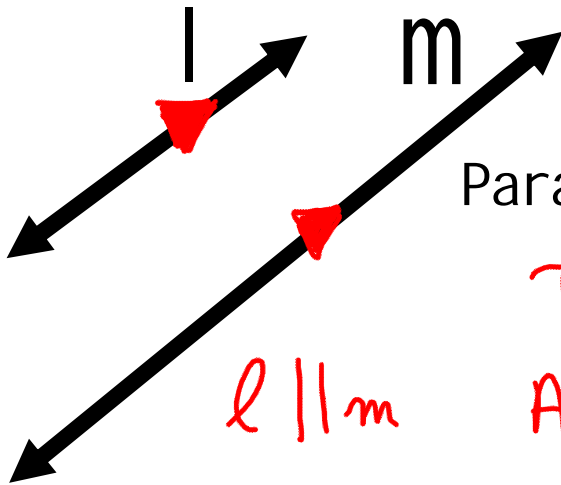
## 3.1: Parallel, Perpendicular & Skew Lines

Target 3A: I identify lines and planes that are parallel. I identify lines that are skew

Frank Lloyd Wright:

- Famous Chicago Architect
- Was inspired by different types of lines and used them constantly in his design.
- His home is in Oak Park!





Lines  $l$  and  $m$  are parallel.

Parallel Lines: LINES THAT  
DO NOT INTERSECT

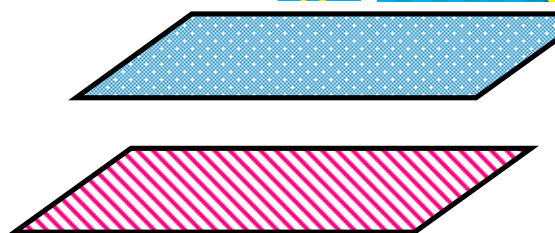
$l \parallel m$  AND ARE IN THE  
SAME PLANE

(COPLANAR)

Parallel Planes:

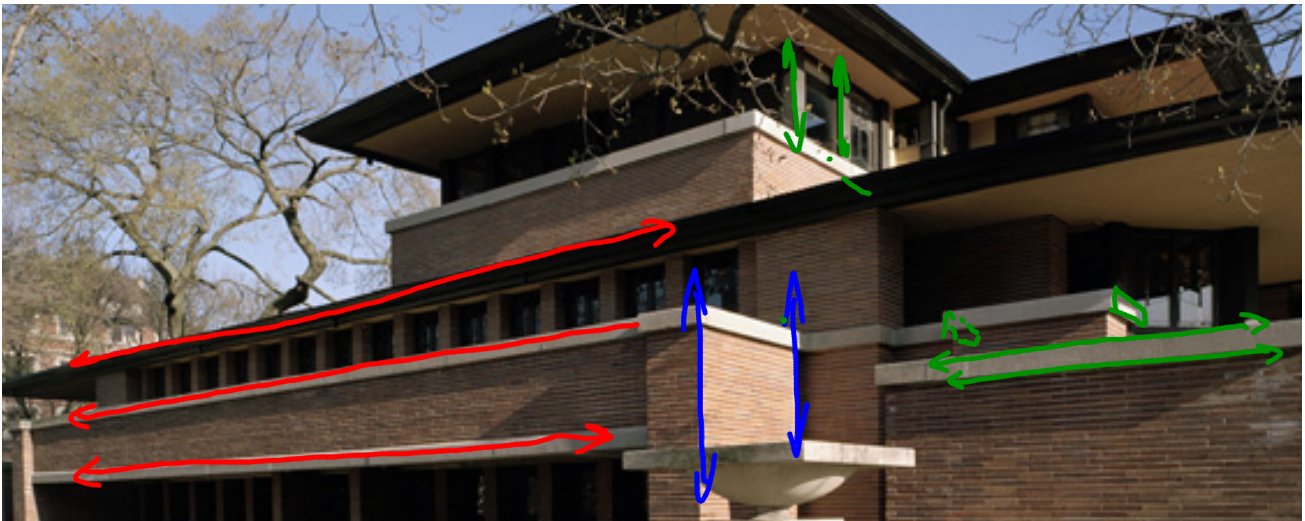
PLANES THAT DO  
NOT INTERSECT

 **THIS**

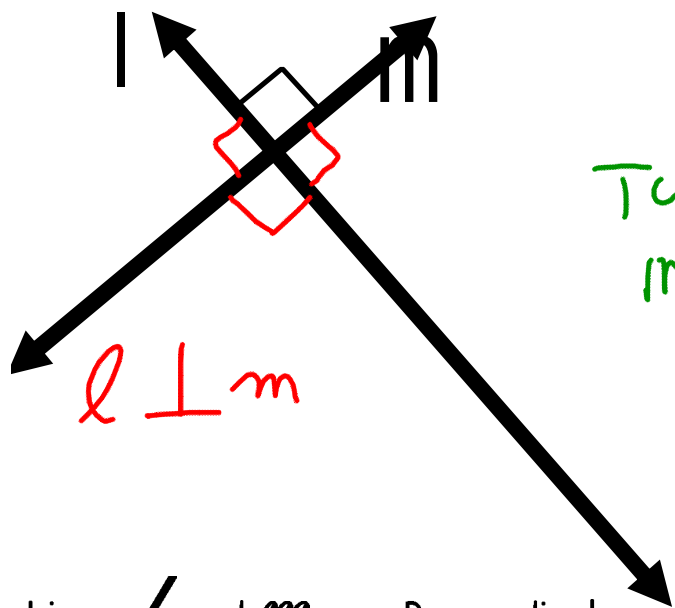


**NOT THAT!** 



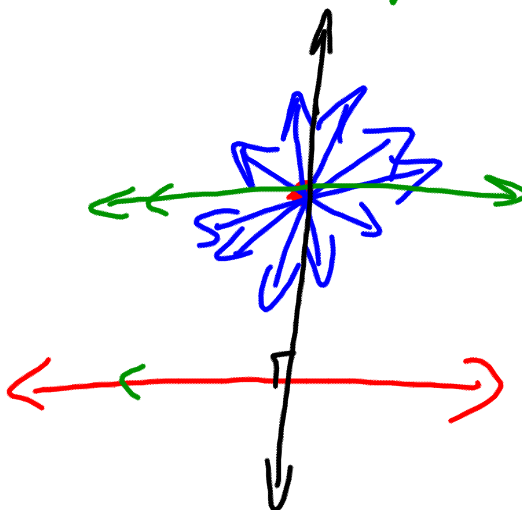


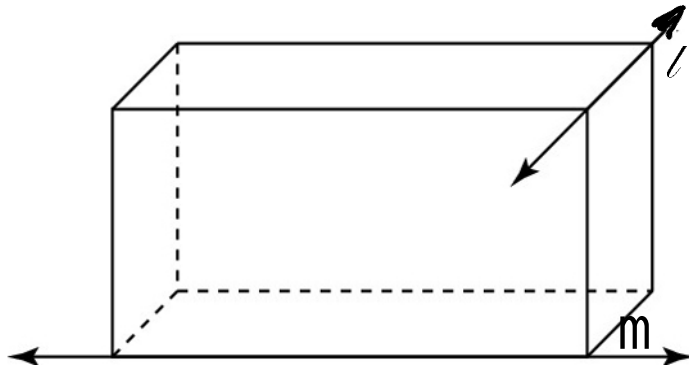
Can you find any parallel lines? Parallel planes?



Lines  $l$  and  $m$  are Perpendicular.

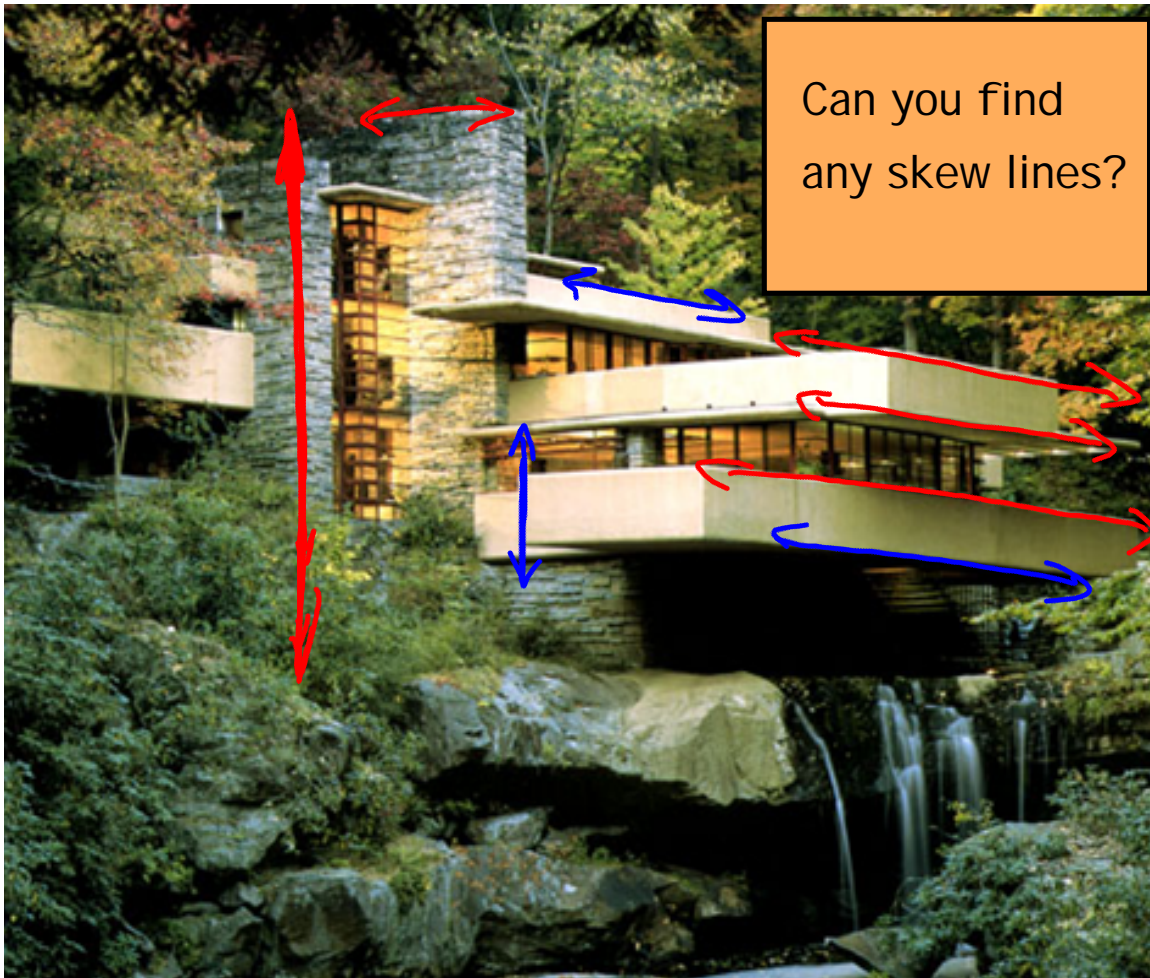
Perpendicular Lines:  
TWO LINES THAT  
INTERSECT AND  
FORM A RIGHT  
ANGLE





Skew Lines:

TWO LINES  
THAT DO NOT  
INTERSECT AND  
ARE NOT ON THE  
SAME PLANE  
(NOT COPLANAR)





# Example 1:

a) Name a line parallel to  $\overline{BC}$

$\overline{GH}$

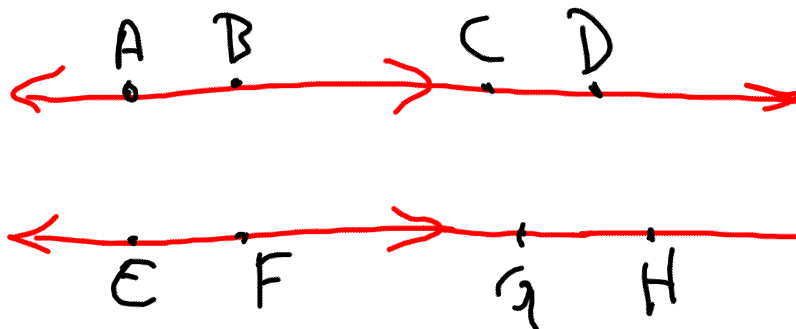
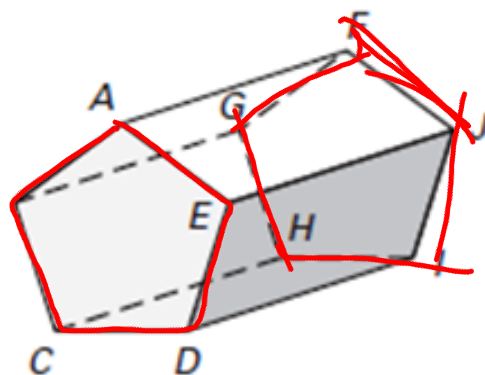
b) Name a line parallel to  $\overline{AF}$

$\overline{ID}$   $\overline{EJ}$   
 $\overline{CH}$   $\overline{BI}$

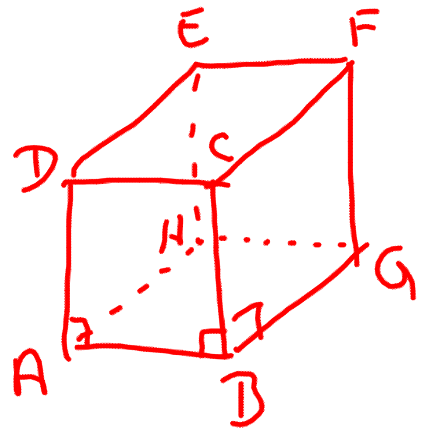
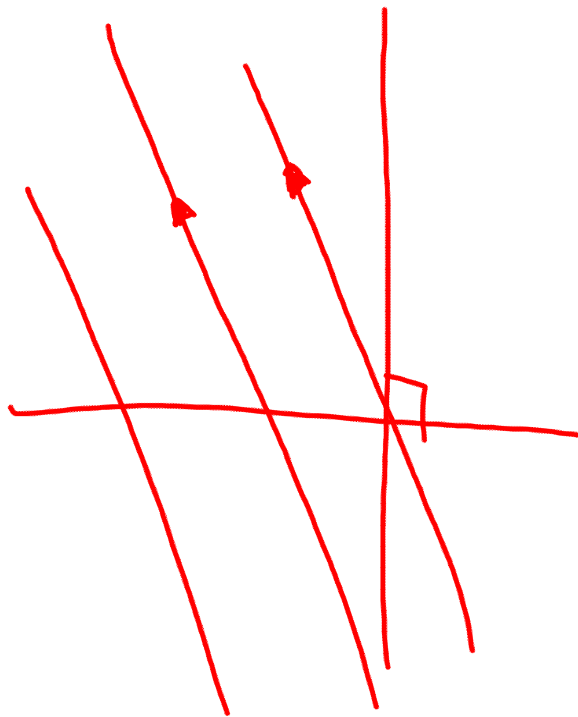
c) Name a line skew to  $\overline{AE}$

\_\_\_\_\_

d) Name a line parallel to plane  $AED$



$\overline{CD} \parallel \overline{EF}$   
 $\overline{CA} \parallel \overline{HG}$   
 $\overline{FG} \parallel \overline{AB}$



$$\overline{AB} \perp \overline{CB}$$

$$\overline{AB} \perp \overline{AD}$$

$$\overline{BG} \perp \overline{CB}$$